

**Perceived Quality of Delivery Services among Mothers
Who Gave Birth in Public Health Facilities in Three
Districts of Jimma Zone, Southwest Ethiopia**

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Abstract

Background: Quality of institutional delivery service is an important intervention towards increasing clients' utilization of skilled attendance at birth and accelerating improvements in newborn's and maternal survival and well-being. Quality of the provision of care in facilities is fundamental to ensuring effective care; women's actual experience of care is a significant, but often neglected aspect of quality of care that contributes to maternity outcomes.

Objective: To assess perceived quality of institutional delivery services and identify associated factors in the three dimensions among women who delivered in public health facilities in three districts of Jimma zone, southwest Ethiopia, 2016.

Method: The study was conducted in three districts of Jimma zone, Oromia Regional State, Southwestern Ethiopia. From February 29-March 20/2016 through community based cross sectional study design. The study participants were mothers who delivered in public health institution in the last 12 months. A simple random sampling technique was used to select 423 study participants. Principal component analysis was used to generate scores for the dimensions. Descriptive statistics, bi-variate and multivariate linear regression analysis were performed. P-value less than 0.05 and 95% confidence intervals were used to determine an association between independent and dependent variables.

Result: Four hundred eleven respondents were interviewed using structured questionnaire, yielding a response rate of 97.2%. Perceived quality of institutional delivery services percentage mean score from the three dimensions were; interpersonal interaction 63%, health care delivery 70% and health facility/structure 58%. Educational level (read and write) (β : -0.331, 95% CI: -0.523,-0.140), urban residence (β : -0.485, 95% CI: -0.696,-0.275), Antenatal care(less than three visits) (β : -0.238, 95% CI: -0.419,-0.056) and mothers attended delivery services by male (β : -1.286, 95% CI: -1.463,-1.109) were statistically associated with lower level of perceived quality of interpersonal interaction score. Whereas second wealth quintile (β : 0.278, 95% CI: 0.04-0.516) was statistically associated with higher perceived quality of interpersonal interaction score. Still birth (β : -0.642, 95% CI: -1.092,-0.193) and mothers attended delivery services by male (β : -0.689, 95% CI: -0.907,-0.472) were statistically associated with lower perceived quality of health care delivery score. Urban residence (β : -0.260, 95% CI: -0.515,-0.005), and Antenatal care(less than three visits) (β : -0.394, 95% CI: -0.628,-0.161) were statistically associated with lower perceived quality of health facility/structure score.

Conclusion: Overall, the perceived quality of institutional delivery services in public health institutions in three districts of Jimma zone were rated low both in the interpersonal interaction and health facility/structure dimension and good in health care delivery dimension. Improvements should be emphasized on client centered service provision through responsiveness to client preference for female provider and increase uptake of Antenatal care services.

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Acronyms

ANC	Antenatal care
BP	Blood pressure
CSA	Central Statistical Agency
EDHS	Ethiopian Demographic and Health Survey
EMOC	Emergency obstetric care
FMOH	Federal Ministry of Health
HSTP	Health Sector Transformation Plan
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MNH	Maternal and Neonatal Health
PNC	Post Natal Care
QMHS	Quality of Maternal Health Services
QOC	Quality of Care
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Science
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Chapter One: Introduction

1.1. Background

The provision of appropriate maternal health care remains one of the main challenges in developing countries(1). In Ethiopia, only sixteen percent of births were assisted by a skilled provider whereas fifty-one and twenty-seven percent of births were assisted by a relative, or some other person and traditional birth attendants respectively(2). Delivery assisted by skilled providers is the most important proven intervention in reducing maternal mortality(3). The Sustainable Development Goals (SDGs) now call for an acceleration of current progress in order to achieve a global maternal mortality ratio (MMR) of 70 maternal deaths per 100,000 live births, or less, by 2030(4). Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge(5).

Quality of care is defined as the degree to which maternal health services for individuals and populations increase the likelihood of timely and appropriate treatment for the purpose of achieving desired outcomes that are both consistent with current professional knowledge and uphold basic reproductive rights(6). Quality of institutional delivery service is an important intervention towards increasing clients' utilization of skilled attendance at birth and accelerating improvements in newborn's and maternal survival and well being(7).

Quality of care can be considered from the provider or user's perspective, and is differentiated into observed and perceived quality(8,9). Users, in reality, play a central role in defining and assessing quality of care because they choose whether or not to go for care based on their opinions, informed by their previous experiences with the health system and those of people they know(10).

Provision of quality health care in facilities is fundamental to ensuring effective care, women's actual experience of care is also important. If women's cumulative experience at a facility is such that it deters some from returning for a subsequent delivery, or leads to rumors to the same effect in the wider community(6).

As calls are made for a more client-centered health care system, it becomes critical to define and measure client perceptions of health care quality and to understand more fully what drives those perceptions(11). To reduce the number of women presenting late once in labour, and to increase overall utilization, facilities need to concern themselves with the experience of care that women receive during their contact with the facility(6).

In the context of maternity service, the mother's assessment of quality is central because emotional, cultural and respectful supports are vital during labor and the delivery process(12). There is a growing consensus that the perceived quality of maternal and newborn services may be a key determinant of utilization of care and thus ultimately influence maternal and perinatal outcomes(13). During labour and delivery, a woman requires constant monitoring and assistance from skilled birth attendants to successfully deliver the baby.

Women require high quality client-oriented care services that address their individual needs throughout pregnancy in order to ensure optimal health for them and their infants(14). Perception of low quality has been reported as a major factor in non-utilization or bypassing of health services(15–17). Women and their family often decide the location for childbirth based on their opinions, evaluations and experience with the maternity services (12).

1.2. Statement of the Problem

In 2015 an estimated 303,000 women died due to complications in pregnancy and child birth worldwide. Although there is 44% decline from the 1990 estimate the number of deaths per year is still unacceptably high(4).

Developing regions account for approximately 99% (302,000) of the global maternal deaths which is roughly 20 times higher than that of developed regions, whereas sub-Saharan Africa alone accounting for roughly 66% (201,000)(4).

In Ethiopia according to recent world health organization (WHO) estimate proportion of mother who was dying to give 100,000 live births has declined to 353 in 2015 from 420 in 2013 (4). Ten countries account for nearly 59% of global maternal deaths; from the ten countries, Ethiopia ranks in fourth place next to Nigeria, India and Democratic Republic of the Congo in 2015(4) .

Achieving the SDG target of a global maternal mortality ratio (MMR) below 70 will require reducing global MMR by an average of 7.5% each year between 2016 and 2030. This will require more than three times the 2.3% annual rate of reduction observed globally between 1990 and 2015(4) .

Facility-based delivery rates in Ethiopia are low; in 2014 it was estimated that only 16% of births occurred in a health facility at national level, with the figure being 13% for the Oromia region (2). Since 2003, the Ethiopian Federal Ministry of Health has worked to dramatically increase the number of health facilities in the country and better connect communities to facilities to improve access to and uptake of services. However, recent work in Ethiopia and elsewhere suggests that improving access is not sufficient to increase use, and that poor perceived quality of care and poor interpersonal care deter women from seeking delivery services at health facilities with skilled personnel(7,18). The quality of institutional delivery services provision generally

remains poor in most public health facilities in Ethiopia(19). Perceived quality of care is one of the principal determining factors of utilization and non-utilization of services, and measuring how clients assess an institution or providers' quality of care is critical to creating effective future interventions.

Factors contributing to less than ideal utilization have to do with the perceptions of clients and communities regarding the quality of care (QOC). These often are not centered on issues of technical content of care and are more likely to center on factors such as an unwelcoming reception by staff, lack of privacy, poor information sharing with the client, and even disrespectful and abusive care(20).

Use of a facility was highly influenced by perceived quality, which was mainly determined by the competence of health workers and the relationship with the health workers, as well as the facility amenities(21). It is commonly accepted that during the stressful process of labor, supporting the parturient will increase the level of woman satisfaction and a skillful midwife as the labor supporter may help the woman pass this stressful situation more easily(22). In accessing obstetric care, women can be influenced by health system factors, such as a respectful provider attitude, competency, and availability of drugs and medical equipment(23). Consequences of low-perceived quality of care include poor compliance with treatment and advice, failure to pursue follow-up care and dissuading others from seeking care (24). Cultural inappropriateness of care, disrespectful and inhumane services, and lack of emotional support, can deter them from accessing obstetric care(25).

While the quality of the provision of care in facilities is fundamental to ensuring effective care, women's actual experience of care is a significant, but often neglected aspect of quality of care that contributes to maternity outcomes(26).

Despite the fact that institutional delivery care quality is essential for further improvement of maternal and child health; little is known about the current perceived quality of the institutional delivery services and factors influencing the perceived quality of care in Ethiopia including the study area. Therefore, the purpose of this study is to assess the perceived quality of institutional delivery services provision and to address which individual and service delivery factors influence such perceptions among mothers attending institutional delivery services in three districts of Jimma zone public health institutions Southwest Ethiopia.

1.3. Significance of the study

The health sector transformation plan (HSTP) of the Ethiopian government intends to reduce the current level of maternal mortality (420/100,000 live births) by more than 50% (199/100,000 live births) in four years. A key service to lead to this reduction is the plan to make sure that 90% of deliveries are attended by skilled personnel(27). Based on what we have just described earlier we argue that attainment of this degree of change will not be realized unless the health system meets the expectation of laboring mothers. The result of this study will help for the policy makers, health managers, health facility, and researchers respectively in the following ways.

- Helps for policy makers to consider clients view in quality improvement for attainment of health sector transformation plan and sustainable development goal.
- To inform health managers about the strengths and weaknesses of the quality of institutional delivery care services, as perceived by mothers, which can help to plan quality improvement on institutional delivery care on client centered way.
- For health facility to plan service provision for enhancement of institutional delivery service quality.
- For Researchers this work service as a base line to do further research.

Chapter Two: Literature Review

2.1. Overview of Quality in Health Care

Quality is an increasingly becoming an important aspect of health care that is given a priority nowadays. Clients have become more aware of quality issues and want health care to become safer and of higher quality where the providers have a moral obligation to provide high-quality and safe care. Quality of care is an important contributor of maternal health care utilization and a significant determinant of maternal mortality. Quality of care, and perceived quality of care, can affect the decision to seek care, and therefore contribute to Phase I delays for mothers during labour and delivery(28).

From 1980 onwards emphasis has been given to both medical approaches to quality of care as well as providers and clients' involvement to improve quality of care in health care system. The importance of interpersonal and communication skill of health workers begins to emerge as an important component of quality of care(29).

2.2 Perceived Quality of Care

Satisfaction is considered to be more dependent on patient expectations than patient perception and does not necessarily reflect the perception pertaining to service quality(30).

Researchers have found it useful to differentiate between general patient satisfaction and patient perceptions of quality. Patient satisfaction reflects the extent to which expectations of service standards have been met and is typically operationalized by asking patients about general satisfaction with care received. Perceptions of quality record patient ratings about specific aspects of service quality. Satisfaction reflects personal preferences much more than ratings of specific aspects of quality. Furthermore, ratings of specific aspects of quality offer much more actionable information for quality improvement than general satisfaction with services(11).

From a patient's perspective, "quality health care" can mean many things. Quality health care doesn't only mean receiving a pleasant greeting when you walk into your provider's office or only waiting few minutes to see your health care provider. Although these aspects are important, receiving quality health care can also mean safety for patients and getting the best value (29,31). To provide high-quality care, providers must understand and respect their clients' needs, attitudes, and concerns. These client perceptions are in turn affected by personal, social, and cultural factors(6).

The provision of services in a disrespectful and cultural unacceptable way hinders clients from utilization of services which results in low utilization of facility based health services(29). If a woman and her family are treated with disdain and disrespect, if she is ignored and subjected to unnecessary, uncomfortable and humiliating procedures, it would not be surprising that if given a choice she and her family subsequently chose to have their babies at home(6).

2.2.1. Interpersonal Interactions

The study done by Maryce Ramsey, Intra Health International in six urban and peri-urban health centers of Oromiya and Amhara region in 2012 revealed that there are problems of disrespect and abuse in health facilities(32). On the study done in Zaire, most women who were asked about the two best qualities for a health care provider first mentioned qualities related to communication style, such as respect and attentiveness, and second listed technical qualities(10).

Thus, the most powerful predictor for client satisfaction with government health services was the provider's behavior towards the patient, particularly respect and politeness. This aspect was much more important than the provider's technical competence (characterized by elements such as explaining the nature of the problem, physical examination, and giving advice)(33).

Most patients lack the medical expertise and skills to evaluate whether their health care provider services are performed properly, or are necessary at all. As a consequence of this, researchers propose that health consumers rely heavily on nontechnical process-related dimensions such as the patient-provider relationship and/or the surrounding service environment to evaluate perceived service quality(34).

The clients who returned for subsequent health care were more likely to have received adequate information and attention from service providers. The time and attention provided to the patients and their families counted a lot in increasing likelihood for subsequent visit to the same institution. Hence, high quality patient-clinician relationship is instrumental for client satisfaction (35).

Women were less pleased with health care provider in the provision of information in child birth process in the study done on Burkina Faso on no effect of user fee exemption on perceived quality of delivery care(36).

In a study done by Larson in rural Tanzania, women who reported disrespect and abuse during delivery had significantly lower quality scores(37). Also in another study done in Tanzania women who reported any disrespectful and abusive treatment during childbirth were less likely to rate the quality of care for delivery as excellent or very good(38).

According to study done by Bahri on quality of labor support through cross-sectional design 2014, Support provided by a companion of the woman's choice during labor and delivery has a significant positive effect on her satisfaction with the overall birth experience. Seventy four percent of women evaluated the emotional support as good, 93% of the women had reported that they are satisfied with physical support, and 92 percent of the participants had expressed that they were content with the instructions/information provided by the personnel(39). Health advice and information given to the client related satisfaction was (67.5 %) on the study done on women's satisfaction with childbirth care in Felege Hiwot Referral Hospital(40). In that women

who had received the respective treatment by the provider rated the quality of nursing care more highly than those who had not(41).

2.2.2. Health Care Delivery

From the Central and southern region of Mali it was reported that, Perceived quality of delivery services was significantly associated with being encouraged to ask questions during the clinical encounter, confidentiality being protected and blood pressure check after delivery in that women who had been encouraged rated the quality of the examination room more highly than women who had not been encouraged to ask questions(41). About 70% of clients respond that health workers did not introduce themselves during the clinical encounter, of the 203 women interviewed after delivery, 82(40%) were not examined, 36(18%) did not receive medication, 118 (58%) did not get a blood test, and 2 (1%) did not receive any other procedures that required a consent(41).

Another study from Mali indicated that women rated the quality of services higher if the health worker explained procedures, purpose of medication and blood specimen and, sought consent as opposed to not having done so, respectively. Being offered to have a guardian by one's side during delivery increases the rating of quality of care. On study conducted in Malawi by Banda and colleagues which found that companionship or having a guardian during child-birth is important mainly for psychological and physical support to the laboring woman and for providing assistance to health care providers(42). On the study done on factors that influence patients' satisfaction with peri-partum care in Germiston hospital maternity unit concerning with privacy women were very satisfied about how privacy was maintained in the wards(43).

Privacy and confidentiality issues served as important determining factors for perceived quality of the nursing care services in delivery services. According to study done in Gambia, there is

association between inadequate privacy with women's poor perceptions of ANC services in Gambia(44).

2.2.3. Health Facility

Addressing client concerns about the health facility is essential to good quality health care. Quality largely depends on client interaction with provider, privacy, ease of access to care, and at its most basic; whether they get the services they want.

A study done in Nepal (2014) birth centers clients rated lowest on items such as adequacy of medical equipment, health staff suited to women health and adequacy of health staff, whereas public hospital was rated the lowest with respect to 'adequacy of rooms, adequacy of water, environment cleanliness(12).

On a study done in Vietnam, the participants responded negatively to the physical conditions of commune health centers, especially medical equipment and staffing. They also responded negatively to the manner in which maternity services were delivered, especially with regard to the recovery of patients. Within the dimension access to services, the respondents were rather negative with respect to 'distance to commune health centre'(45). Cleanliness is easily visible to clients in comparison to other aspects of quality of care. More than two thirds of the clients were satisfied or very satisfied with cleanliness on the study done on women's satisfaction of maternity care in Nepal and its correlation with intended future utilization(35). Less than half of the respondents were satisfied with cleanliness (39.4%) on the study done on delivery care satisfaction at government hospitals in xiengkhuang province under the maternal and child health strategy in Lao pdr(46).

2.3. Factors Influencing Perceived Quality of Care

2.3.1. Socio-demographic Factors

Education and exposure to media

The study done by Larson in rural Tanzania found that women who had completed some secondary school rated the quality of delivery care lower than women with less education(37). In contrary to the above study from Uganda reported that, quality of care was significantly higher for post-secondary women relative to those with no education(7). Another study also showed that maternal age and education were positively associated with maternal satisfaction(44). It was also reported that maternal characteristics that affected the rating of quality of care include education and media exposure. Listening to the radio had a negative impact on women's rating(37).

Place of residence, religion and Income

A study done in Addis Ababa (2015) reported that among the socio-demographic and obstetric variables, only respondents' monthly income was significantly associated with a different level of disrespect and abuse reported by the participants(47). Economic status and religion had association with perceived quality of care in a study done in Mali where non-Christian as well as wealthier women rated the quality of services better than Christians and poorer women(41). The study done in Uganda reported that on average, quality of care was significantly higher for rural residents relative to urban residents(7). On the study done on client perceptions of the quality of primary care services in Afghanistan for female client's, being seen by a female provider is associated with higher perceived quality(48).

2.3.2. Obstetrics Factors

Maternal characteristics have an association with women perceived quality of care. A study in Nigeria found that multiparous women were more satisfied with care as compared to primipara

women(9). In rural Tanzania women who had received a greater number of ANC services rated the quality of delivery care higher than those who received fewer services, as did women receiving more delivery services(37). For number of children ever born the quality of care was significantly lower for women with 4–5 children ever born relative to women with 1 child(7). Women who had delivered through Cesarean section rated the quality of the interpersonal relationship lower than women who had delivered vaginally(41).

2.4. Conceptual Framework

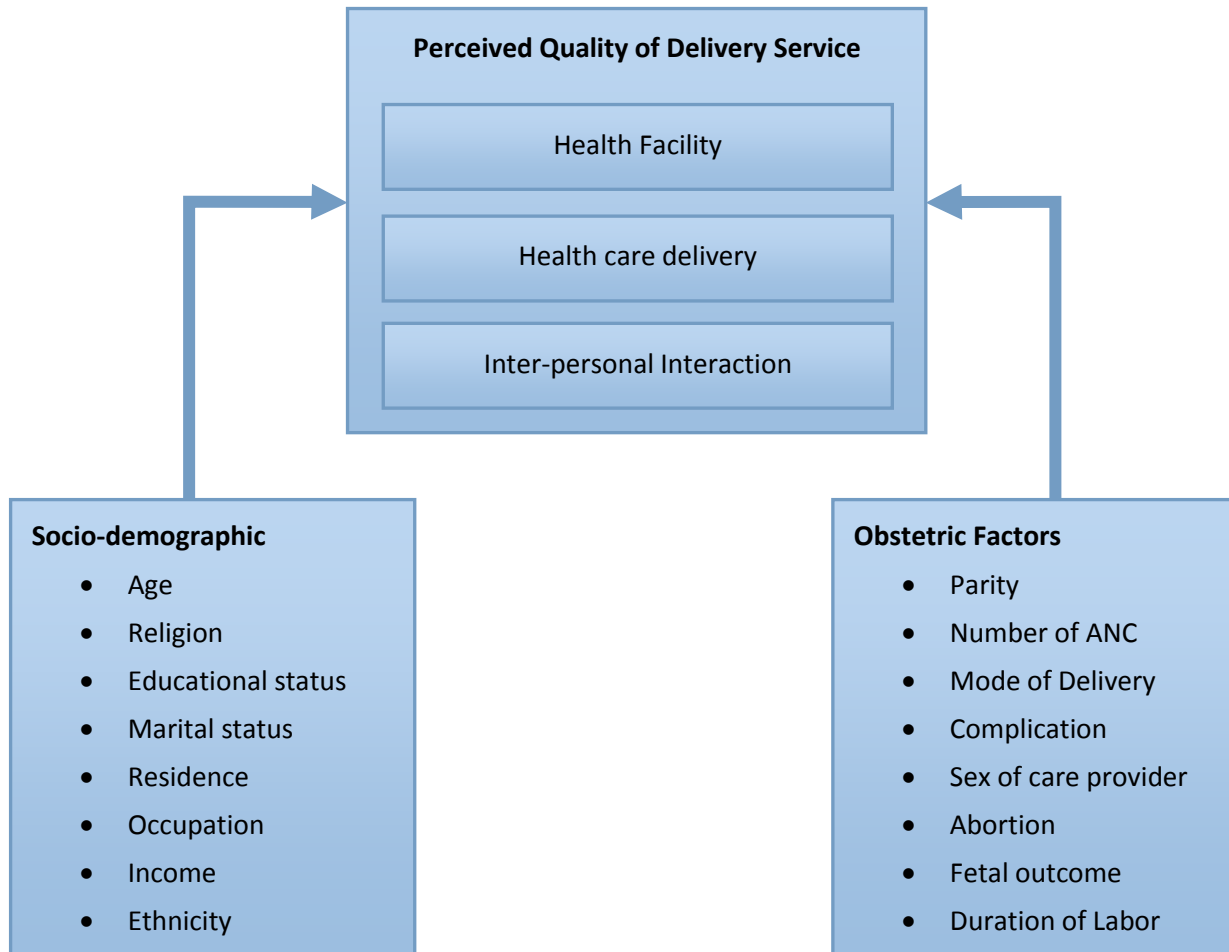


Figure 1: Conceptual framework adapted after reviewing literature in public health facilities of three districts of Jimma zone, southwest Ethiopia, 2016. (8,12,41,45).

Chapter Three: Objectives of the Study

3.1. General Objective

To assess perceived quality of institutional delivery services and associated factors among women who delivered in public health facilities in three districts of Jimma zone, southwest Ethiopia, 2016.

3.2. Specific Objectives

- To determine perceived quality of health care delivery score
- To determine perceived quality of interpersonal interaction score
- To determine perceived quality of health facility/structure score
- To identify factors associated with perceived quality of delivery services in the three dimensions

Chapter Four: Methods and Participants

4.1. Study Area and Period

This study was conducted in public health facilities of three districts of Jimma zone, Oromia Regional State, Southwestern Ethiopia from February 29 to March 20, 2016. Based on the 2007 Census, the total projected population of the zone is 3,090,112 of which 732,356 are women of reproductive age group. The zone is divided into 18 districts and one town administration with a total of 548 kebeles (the smallest administrative unit) among which 515 are rural. In Jimma zone there are 4 primary hospitals, 115 health centers and 520 health posts. There is a zonal health department located in the capital of the zone, Jimma town, and there are 18 woreda/town health offices which are responsible for managing health activities in each of the districts in the zone.

4.2. Study Design

Community based cross sectional study design with quantitative data collection method was used.

4.3. Source Population

The source population was consisted of all mothers who gave birth in public health facilities in three districts of Jimma zone in the last 12 months (From the 29th of February 2015 to the 29th of February 2016).

4.4. Study Population

The study population included a sample of mothers who gave birth in public health facilities in three districts of Jimma zone in the last 12 months (From the 29th of February 2015 to the 29th of February 2016).

4.5. Exclusion Criteria

Mothers who were unable to respond because of illness were excluded.

4.6. Sample Size Determination

The sample size for this study was determined using single population proportion formula by taking p, proportion of high perceived quality with institutional delivery, to be 50%. (since there is no similar study done in Ethiopia on perceived quality of institutional delivery services). Other assumptions made during the sample size calculation, with 5% margin of error (d) and confidence interval of 95%. Based on these assumptions, the sample size was calculated as follows:

Where z_{α} =level of significance

P= proportion of high perceived quality with institutional delivery, to be 50%. (since there is no similar study done).

d=margin of error 5%

$$n = Z^2 p (1-p) / d^2$$

$$n = 1.96^2 (.05^2) / 0.05^2$$

$$n = 384$$

Then the required sample size becomes 384. As the result of 10% non-response rate the final sample size was 423.

4.7. Sampling Technique

As part of the mega research project on maternal and child health services we conducted this study in three of the study districts of the mega research project (Gomma, Kersa and Seka chekoresa) in Jimma zone. Ten kebeles were selected randomly from the three woreds (four kebeles from Gomma woreda, three kebeles from Kersa and three kebeles from Seka chekoresa woreda). For each selected kebeles sampling frame was developed by taking the list of all 950 eligible mothers who gave birth in the last 12 months from health extension registration book at

the health post and 423 mothers were selected by simple random sampling technique through lottery method. The total sample size was proportionally allocated for the ten kebeles based on the number of women who gave birth at a public health facility during the last 12 months in their respective kebeles.

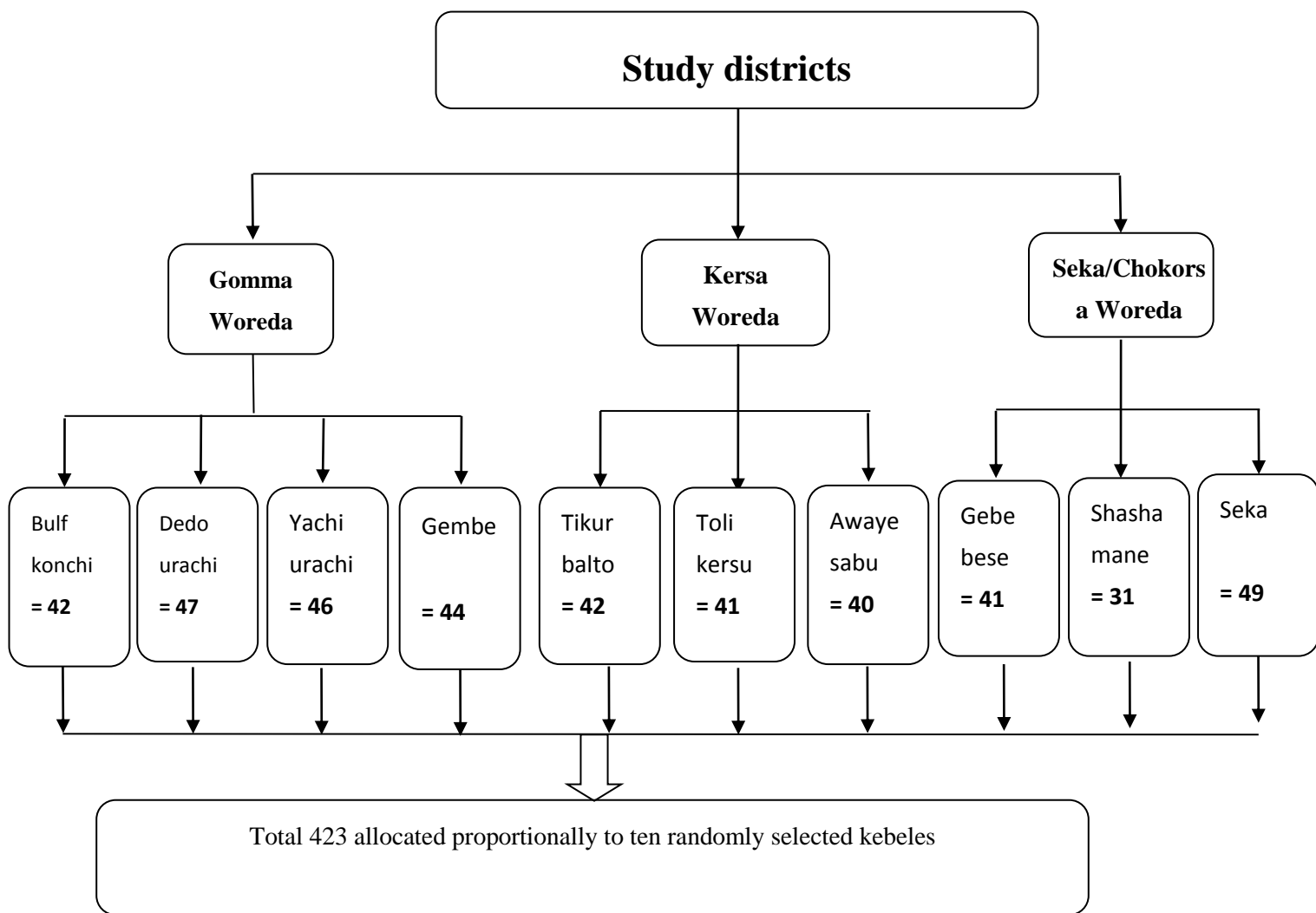


Figure 2: schematic presentation of the sampling procedure in public health facilities of three districts of Jimma zone, southwest Ethiopia, 2016.

4.8. Data Collection Tools and Measurement

Questionnaire for interview was adapted from studies conducted in other developing country and contextualized to the study setting(8,12,45). Perceived quality of institutional delivery services were measured using five point likert scales with three dimensions. The dimension are health facility, health care delivery, and interpersonal interaction.

Interpersonal interaction dimension measured with eight items and cronbach's alpha of 0.62 (Openness of health staffs with mothers, respectfulness of health staffs towards the mothers, adequacy of time the health staffs devoted to mothers, compassion for mothers, capability of health staffs to finding out what is wrong with the mothers, honesty of health staffs, adequacy of information during delivery, and well examination of health staffs).

Health care delivery dimension measured with five items and cronbach's alpha of 0.65 (Good drugs supply, needed drugs prescription, easy availability of drugs, practice of necessary procedure, and privacy during delivery).

Health facility/structure dimension measured with seven items and cronbach's alpha of 0.85 (adequacy of health staffs, nearness of the health facility, adequacy of delivery room, cleanliness of the health facility, adequacy of water for women in the facility, equipment suitability, and health staffs suitability to treat women health problems).

4.9. Variables

4.9.1. Dependent Variable

The primary outcome variable was *perceived quality of institutional delivery services* as measured by the following sub dimensions.

- Perceived quality of health care delivery
- Perceived quality of interpersonal interaction

- Perceived quality of health facility/ structure

4.9.2. Independent Variables

Independent variables expected to influence women's perception of quality of care were summarized as follows:

Socio-demographic factors: age, religion, educational status, marital status, residence, occupation and wealth index.

Household economic status was estimated on the value of the selected household's asset ownership, such as commodities purchased in markets (like television, radio, and phone etc), livestock and farmland ownership, household size and housing characteristics. Principal component analysis was run on the collected ownership of household assets recorded during house to house interviews and all interviewed clients classified into one of five wealth index quintiles using the Ethiopian demographic health survey classification. Household's economic status was divided into five wealth quintiles (from the lowest to the highest quintile).

Obstetric factors: parity, number of ANC visit, route of delivery of the last child, any complication during delivery of the last child, type of institution used, sex of the care provider who attended the delivery, duration of labour, status of fetal out come and history of abortion.

4.10. Data Analysis

Data were entered into EPI-data version 3.1 and exported into SPSS version 16 for analysis. Descriptive statistics like tables was used. Factor analysis based on principal component extraction followed by varimax rotation was used within the adapted 20-item scale. Internal consistency of the measurement scale was investigated through Cronbach's alpha coefficient and

acceptable if the cronbach alpha value greater or equal 0.6. All variables with p-value less than 0.25 in bi-variate analysis were considered as candidates for multiple linear regressions analysis. Multivariate linear regression analysis was done through enter method to identify the most significant predictors of perceived quality of institutional delivery services on the three dimensions. The assumptions in multiple linear regressions (linearity, normality, and constant variance) were checked. Significant independent predictors were declared at 95% confidence interval and P-value of less than 0.05 and unstandardized β was used for interpretation.

4.11. Factor Analysis

Factor analysis is presented in Table 1. Three factors were obtained, with eigenvalues of 5.18, 2.02, and 1.58. The total variance explained was 43.95%. Adding more scales to dimensions would increase the total variance explained but also decreases its practicality. So, rather than missing its practicality it is better to act on identified dimensions than adding extra scales to increase the total variance explained(8,45,49). The three factors identified, in order of percentage variance explained, represented by interpersonal interaction dimension (17.46%), health care delivery dimension (14.18%), and health facility/structure dimension (12.32%). The final scale consisted of 18 items after principal component analysis in three dimensions: 8 items on interpersonal interaction, 4 items on health care delivery, and 6 items on health facility/structure. Cronbach's alpha confirmed internal consistency of the dimension, which was 0.76 for the interpersonal interaction dimension, 0.77 for the health care delivery dimension, and 0.68 for the health facility/structure dimension.

Table 1: Characteristics of the three dimension principal component analysis (factorial loading) of selected items and Cronbach’s alpha values on each dimension in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016.

Items	Component		
	Interpersonal interaction Cronbach alpha=0.76	Health care delivery Cronbach alpha=0.77	Health facility/structure Cronbach alpha=0.68
Interpersonal/Client provider interaction dimensions			
Openness of health staffs with mothers	0.692		
Respectfulness of health staffs towards the mothers	0.678		
Adequacy of time the health staffs devoted to mothers	0.677		
Compassion for mothers	0.653		
Capability of health staffs to finding out what is wrong with the mothers	0.581		
Honesty of health staffs	0.565		
Adequacy of information during delivery	0.518		
Well examination of health staffs	0.438		
Health care delivery dimensions			
Good drugs supply		0.829	
Needed drugs prescription		0.827	
Easy availability of drugs		0.739	
Privacy during delivery		0.432	
Health facility /structure dimensions			
Adequacy of delivery room			0.675
Cleanliness of the health facility			0.650
Adequacy of water for women in the facility			0.638
Equipment suitability			0.542
Health staffs suitability to treat women health problems			0.424
Health staff adequacy			0.412

4.12. Data Quality Assurance

To assure the quality of data before data collection valid tool for perceived quality of institutional delivery services was adapted from other study. The adapted English version instrument was translated into Afan Oromo and re-translated back into English with independent translators with health background to check the consistency of the questionnaire. Data collectors and supervisors were trained for one day by principal investigator on data collection tools, procedure during data collection and on a way how to obtain consent from clients. Pretest was done in 5% of the study participants in Mana woreda to take some corrective actions if there.

Respondents were interviewed face to face through house to house visit by three diploma nurses and one supervisor has been assigned per woreda (i.e. three supervisors) to supervise and assist data collectors and to take remedial action when mistakes happen at spot. Repeated visits were conducted for mothers who were not available during first visit. All the data from each respondent has been checked for completeness, accuracy, and consistency by the supervisors, each day after data collection.

4.13. Ethical Consideration

Ethical clearance was obtained from the institutional review board (IRB) of Jimma University, College of Health Science. A formal letter, from college of Health sciences of Jimma University, was submitted to Jimma zone Health Department and all the three woreda in the Zone to obtain their co-operation. Then permission and support letter were written to each respective public health institutions from respective woreda health office and from the catchment public health facilities to health posts. To ensure confidentiality the study participants were registered using codes but not in names. Mothers were informed that their participation was voluntary and the

choice to participate or not would have no effect on any future services utilization. Orally informed consent was obtained from respondents prior to the interview.

4.14. Dissemination Plan

The result of the study will be presented to Jimma university Department of Health Economics, Management and Policy and also will be shared with Jimma zonal health department and the report will be presented in public presentation and efforts will be made to publish the findings of the study on a peer reviewed journal.

4.15. Operational Definition

Skilled birth attendant: an accredited health professional who has reached proficiency in managing normal pregnancies, delivery, and the immediate postnatal period, and is trained to identify and refer cases of complications in women and newborns. In Ethiopia the cadres included in this category are doctors, health officers, midwives and nurses.

Interpersonal interaction dimension: The scores generated through principal component analysis from the eight items (respectfulness of health care provider, openness of health care provider, compassion for mothers, adequacy of information, well-examination, adequacy of time, capability of health care provider and honesty).

Health care delivery dimensions: The scores generated through principal component analysis from the four items (privacy, good drug supply, easy availability of drugs and needed drugs prescription).

Health facility dimensions: The scores generated through principal component analysis from the six items (adequacy of delivery room, cleanliness of the facility, adequacy of water, equipment suitability, staff suitability and health staff adequacy).

Perceived quality of institutional delivery services: quality of institutional birth services in the

perspectives of the clients and measured by the three dimensions.

Percentage mean score= (actual score-potential minimum score)/ (potential maximum-potential minimum)*100= (p1%+p2%+.....P411%)/411(50,51).

P- Represents participants

Positive= those participants respond agree and strongly agree

Negative= those participants respond neutral, disagree and strongly disagree

Low = if the percentage mean score of the dimension of perceived quality of institutional delivery is less than 65%.

Good = if the percentage mean score of the dimension of perceived quality of institutional delivery is between 66%-74%.

Chapter Five: Result

5.1. Socio-demographic Characteristics

Four hundred eleven respondents were interviewed using structured questionnaire, yielding a response rate of 97.2%. The mean and standard deviation of the age of women was 28 ± 4.6 years. One hundred eighty-one (44 %) of mothers were unable to read and write. More than three fourth of the respondents (332 (80.8%)) were housewives and three hundred eighteen (77.4%) were from rural residence. Three hundred thirty-six (81.8%) were Oromo by ethnicity. The majority (404 (98.3 %)) were married and were Muslim by religion (82.7%). Three hundred (73%) of mothers have an exposure to radio or television. For 321(78.1%) of mothers took less than one hour to reach the public health institutions they delivered. Wealth index of 83 (20.2%) of the respondents was in the middle wealth quintile (Table 2).

Table 2: Socio-demographic characteristics of mothers who delivered in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016 N=411

Variables	Categories	Frequency	Percent
Place of residence	Rural	318	77.4
	Urban	93	22.6
Religion of the mother	Muslim	340	82.7
	Orthodox	60	14.6
	Protestant	11	2.7
Ethnic group of the mother	Oromo	336	81.8
	Amhara	28	6.8
	Kefa	18	4.4
	Dawuro	17	4.1
	Others*	12	2.9
Age of mother	<20	5	1.2
	20-34	362	88.1
	35-49	44	10.7
Occupation of the mother	House wife	332	80.8
	Merchant	32	7.8

Variables	Categories	Frequency	Percent
	Farmer	31	7.5
	Daily laborer	10	2.4
	Government employee	6	1.5
Educational level of the mother	Unable to read and write	181	44.0
	Only read and write	109	26.5
	Primary education	92	22.4
	Secondary education	24	5.8
	College and above	5	1.2
Marital status of the mother	Married	404	98.3
	Others**	7	1.7
Wealth index	Lowest	82	20.0
	Second	82	20.0
	Middle	83	20.2
	Fourth	82	20.0
	Highest	82	20.0

* Others=Gurage, Yem

** Others=single, divorced and widowed

5.2. Obstetric Characteristics

One hundred ten (26.8) of mothers reported that they encountered complications during delivery. Three hundred ninety two (95.4%) of the clients did have live birth outcome. Majority of the women received delivery services by a female health care provider which accounts about 308(74.9%). Forty one (10%) of the mothers did face previous abortion, and 64 (15.6%) of the mothers had unwanted birth. For 337 (82%) of the women labor stayed for less than 12 hour. The majority of deliveries were normal vaginal deliveries (86.9 %). Three hundred four (74%) of the respondents had visited the public health institution for antenatal care follow up for more than two times (

Table 3)**Table 3:** Obstetric characteristics of mothers who gave birth in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016 N=411

Variables	Categories	Frequency	Percent
Number of parity	One	75	18.2
	Two to three	168	40.9
	Four to five	130	31.6
	Six and above	38	9.2
Complication during delivery of the last child	Yes	110	26.8
	No	301	73.2
Outcome of the last pregnancy	Live	392	95.4
	Died	19	4.6
Sex of the health care provider	Female	308	74.9
	Male	103	25.1
History of abortion	Yes	41	10.0
	No	370	90.0
Number of ANC visits	1	15	3.8
	2	80	20.1
	3	105	26.3
	4	199	49.9
Last pregnancy planned	Yes	347	84.4
	No	64	15.6
Duration of labor	< 12 hours	337	82.0
	12-24 hours	60	14.6
	> 24 hours	14	3.4
Method of delivery	Normal vaginal delivery	357	86.9
	Assisted vaginal delivery	28	6.8
	Cesarean section	26	6.3
ANC visit during your last pregnancy	Yes	399	97

5.3. Clients Perception on Quality of delivery services

Interpersonal interaction dimension

The percentage mean score of interpersonal interaction dimension was 63%. From the participants 249(51.1%) of mothers rate positive (agree and strongly agree) on adequate time allocated by health care provider during labor and delivery. The provision of adequate information for mothers during labor and delivery were rate positive (agree and strongly agree) by 61% of the study participants. Two hundred eighty two (69%) of the study participants rate positive (agree and strongly agree) on respectful services provided for mothers during labor and delivery (

Table 4).

Table 4: Participants' response on perceived quality of institutional delivery services on interpersonal interaction dimension in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016

Items	1	2	3	4	5
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Interpersonal interaction dimensions					
Well examination of health staffs	4(1.0)	98(23.8)	28(6.8)	238(57.9)	43(10.5)
Adequacy of information during delivery	10(2.4)	130(31.6)	22(5.4)	193(47.0)	56(13.6)
Capability of health staffs to finding out what is wrong with the mothers	4(1.0)	59(14.4)	49(11.9)	259(63.0)	40(9.7)
Compassion for mothers	4(1.0)	113(27.5)	31(7.5)	205(49.9)	58(14.1)
Honesty of health staffs	2(.5)	45(10.9)	75(18.2)	235(57.2)	54(13.1)
Openness of health staffs with mothers	1(.2)	89(21.7)	23(5.6)	240(58.4)	58(14.1)

Respectfulness of health staffs towards the mothers	6(1.5)	104(25.3)	17(4.1)	214(52.1)	70(17)
Adequacy of time the health staffs devoted to mothers	8(1.9)	147(35.8)	46(11.2)	180(43.8)	30(7.3)

Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and strongly agree (5)

Health facility/structure dimension

The percentages mean score of health facility/structure dimension was 58%. Two hundred forty two (59%) of mothers rate positive (agree and strongly agree) on adequacy of delivery room for mothers in the public health institution. Only 28% of mothers rate positive (agree and strongly agree) on adequacy of water in the public health institution where they were delivered. Half of the study participants rate the cleanliness of the public health facilities positive (agree and strongly agree) (Table 5).

Table 5: Participants' response on perceived quality of institutional delivery services on health facility/structure dimensions in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016.

Items	1	2	3	4	5
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Health facility/structure dimension					
Health staffs suitability to treat women health problems	2(.5)	59(14.4)	15(3.6)	269(65.5)	66(16.1)
Adequacy of delivery room	11(2.7)	144(35.0)	14(3.4)	188(45.7)	54(13.1)
Adequacy of water for women in the facility	93(22.6)	179(43.6)	16(3.9)	87(21.2)	36(8.8)
Cleanliness of the health facility	6(1.5)	151(36.7)	33(8.0)	162(39.4)	59(14.4)
Equipment suitability	8(1.9)	121(29.4)	66(16.1)	177(43.1)	39(9.5)
Health staff adequacy	6(1.5)	63(15.3)	32(7.8)	237(57.7)	73(17.8)

Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and strongly agree (5)

Health care delivery dimensions

The percentages mean score of health care delivery dimension was 70%. Three hundred forty nine (85%) of the mothers rate (agree and strongly agree) on care received from the public health institutions in health care delivery dimension on the privacy provided during labor and delivery. About two hundred fifty one (61%) of the mothers rated positive on item related with easy availability of drugs in the public health institutions (

Table 6).

Table 6: Participants’ response on perceived quality of institutional delivery services on health care delivery dimension in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016

Items	1	2	3	4	5
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Health care delivery dimension					
Privacy during delivery	12(2.9)	35(8.5)	15(3.6)	191(46.5)	158(38.4)
Needed drugs prescription	1(.2)	65(15.8)	13(3.2)	248(60.3)	84(20.4)
Good drugs supply	4(1.0)	60(14.6)	18(4.4)	263(64.0)	66(16.1)
Easy availability of drugs	9(2.2)	126(30.7)	25(6.1)	185(45.0)	66(16.1)

Strongly disagree (1), Disagree (2), Neutral (3), Agree (4) and strongly agree (5)

5.4. Factors associated with perceived quality of Interpersonal interaction

Bi-variate analysis indicate that there were no statistically significant differences in score of interpersonal interaction dimension by age group (p=0.7), occupation (p=0.8) and marital status, (p=0.47). On the other hand there were statistically significant differences in the clients scores for interpersonal interaction dimension by place of residence (p=0.00), educational status (p= 0.00), listen to radio or television (p=0.011), time to reach health facility (p=0.233), and income (p= 0.24).

For the obstetric factors the findings indicated that there were no statistically significant differences in score of interpersonal interaction by complication ($p=0.3$), and planned pregnancy ($p=0.4$). However, there were statistically significant differences in the clients scores for interpersonal interaction dimension by number of ANC ($p=0.072$), duration of labor ($p=0.243$), mode of delivery ($p=0.218$), parity (0.236), abortion ($p=0.004$), sex of health care provider ($p=0.016$) and last pregnancy status ($p=0.024$).

To build multivariate model enter method was used. In the multivariate model, socio-demographic and obstetric factors were statistically associated with interpersonal interaction dimension of perceived quality of institutional delivery services were place of residence, educational level, wealth index of the households, number of ANC and sex of health care provider. Interpersonal interaction score was significantly lower for mothers who were able to read and write relative to mothers who were unable to read and write ($\beta: -0.331$, 95% CI: $-0.523,-0.140$), urban residents relative to rural residents ($\beta: -0.485$, 95% CI: $-0.696,-0.275$), mothers who were attended ANC up to two visits relative to mothers up to four visits ($\beta: -0.238$, 95% CI: $-0.419,-0.056$) and for mothers attended delivery service by male health care provider relative to female health care provider ($\beta: -1.286$, 95% CI: $-1.463,-1.102$). In the contrary, interpersonal interaction score was significantly higher for mothers with wealth index level in second wealth quintile as compared to those in the middle wealth quintile ($\beta: 0.278$, 95% CI: $0.04-0.516$) (Table 7).

Table 7: Interpersonal interaction dimension of perceived quality by client's characteristics in public health institutions of three districts of Jimma zone, southwest Ethiopia, 2016.

Variables	Unstandardized β Coefficients	P-value	95% Confidence Interval for β	
Residence				
Urban	-.485	.000*	-.696	-.275
Listen to radio or television				
No	.073	.420	-.105	.252
Yes(reference)				
Parity				
One child	.025	.826	-.199	.248
Having four up to five children	.001	.991	-.183	.181
Having six and above children	-.095	.509	-.377	.187
Having two to three children (reference)				
Abortion experience				
Yes	-.094	.489	-.360	.172
No(reference)				
Frequency of ANC follow up				
Less than three ANC visit	-.238	.010*	-.419	-.056
Three and more ANC visit(reference)				
Mode of delivery				
Normal vaginal delivery (reference)				
Assisted delivery	-.204	.206	-.519	.112
Cesarean section	.215	.207	-.119	.549
Sex of health care provider				
Male service provider	-1.286	.000*	-1.463	-1.109
Female(reference)				
Duration of labor				
Less than 12 hour (reference)				
Twelve to twenty four hour	.180	.118	-.046	.407
Greater than 24 hour	-0.052	.815	-.484	.381

Variables	Unstandardized β Coefficients	P-value	95% Confidence Interval for β	
Fetal out come				
Still birth	-0.299	.109	-.665	.067
Live birth(reference)				
Wealth index				
Middle (reference)				
Lowest	0.077	.529	-.163	.316
Second	.278	.022*	.040	.516
Fourth	.106	.385	-.134	.347
Highest	-.118	.340	-.360	.125
Time it took to reach the nearest facility				
Less than one hour (reference)				
One hour to two hour	-.064	.528	-.263	.135
Two hour and above	.0057	.840	-.499	.613
Educational level				
Unable to read and write (reference)				
Read and write	-.331	.001*	-.523	-.140
Primary education	-.003	.977	-.216	.210
Secondary education	.047	.789	-.300	.395
College and above	.189	.604	-.526	.904

Note: * Statistically significant at p-value < 0.05, 95% CI. β - Positive values indicate higher quality score relative to the referent variable category level, while negative values indicate lower quality score compared with the referent category.

5.5. Factors associated with perceived quality of health care delivery

Bi-variate analysis indicated that there were no statistically significant differences in score of health care delivery dimension by age, marital status, occupation, educational status, residence and household income. But, only Listen to radio or television (p=0.011) was statistically significant.

The bi-variate analysis indicate that there were no statistically significant differences in score of health care delivery by complication (p= 0.908), and planned pregnancy (p= 0.720). However, there were statistically significant differences in the clients scores for health care delivery dimension by number of ANC (p= 0.079), sex of health care provider (p=0.068), abortion (p= 0.195), duration of labor hour (p= 0.088), parity (p=0.152), delivery method (p=0.193), and last pregnancy status (p=0.001).

In the multivariate model, none of socio-demographic factors were associated. From the obstetric factors sex of health care provider and outcome of the last pregnancy were significant factors. Health care delivery score was significantly lower for mothers who received services from male health care provider relative to mothers who received services from female health care provider (β : -0.689, 95% CI: -0.907,-0.472) and for mothers with still birth as compared to those who had a live birth (β : -0.642, 95% CI: -1.092,-0.193) (**Table 8**).

Table 8: Health care delivery dimension of perceived quality by client’s characteristics in public health institutions three districts of Jimma zone, southwest Ethiopia, 2016.

Variables	unstandardized β Coefficients	P-value	95% Interval for β	Confidence
Frequency of ANC follow up				
Less than three ANC visit	.197	.080	-.023	.416
Three and more ANC visit(reference)				
Sex of health care provider				
Male service provider	-.689	.000*	-.907	-.472
Female(reference)				
Duration of labor				
Less than 12 hour (reference)				
Twelve to twenty four hour	-.176	.214	-.455	.102
Greater than 24 hour	-.187	.486	-.713	.340

Variables	unstandardized β Coefficients	P-value	95% Interval for β	Confidence
Fetal out come				
Still birth	-.642	.005*	-1.092	-.193
Live birth(reference)				
Listen to radio or television				
No	.103	.337	-.108	.313
Yes(reference)				
Parity				
One child	.017	.901	-.250	.284
Having four up to five children	-.024	.826	-.243	.194
Having six and above children	-.082	.632	-.419	.255
Having two to three (reference)				
Abortion experience				
Yes	-.166	.294	-.145	.477
No(reference)				
Mode of delivery				
Normal vaginal delivery (reference)				
Assisted delivery	-.072	.710	-.455	.310
Cesarean section	.207	.311	-.194	.608

Note: * Statistically significant at p-value < 0.05, 95% CI. β - Positive values indicate higher quality score relative to the referent variable category level, while negative values indicate lower quality score compared with the referent category.

5.6. Factors associated with perceived quality of health facility/structure

Bi-variate analysis indicate that there were no statistically significant differences in score of health facility/structure dimension by age group (p=0.456), marital status (p=0.544), household income (p= 0.323) and educational status (p=0.32). But there were statistically significant differences in the clients scores for health facility/structure dimension by listen to radio or television (p=0.103) and residence (p= 0.161).

We also found that there were no statistically significant differences in score of health facility/structure by complication during delivery ($p=0.433$), and planned pregnancy ($p=0.902$). However, there were statistically significant differences in the clients scores for health facility/structure dimension by parity ($p=0.231$), number of ANC ($p=0.003$), mode of delivery ($p=0.227$), abortion ($p=0.215$) and sex of health care provider ($p= 0.140$).

In the multivariate model socio-demographic and obstetric factors statistically associated with health facility/structure dimension of perceived quality of institutional delivery services were place of residence, and number of ANC. Health facility/structure score was significantly lower for mothers who were from urban residents compared to rural residents ($\beta: -0.260, 95\% \text{ CI: } -0.515,-0.005$) and mothers who were attended up to two visits compared to mothers up to four visits ($\beta: -0.394, 95\% \text{ CI: } -0.628,-0.161$) (

Table 9).

Table 9: Health facility/structure dimension of perceived quality by client’s characteristics in public health institutions of three districts of Jimma zone, southwest Ethiopia 2016

Variables	unstandardized Coefficients	β P-value	95% Confidence Interval for β	Interval
Frequency of ANC follow up				
Less than three ANC visit	-.394	.001*	-.628	-.161
Three and more ANC visit(reference)				
Sex of health care provider				
Male service provider	.091	.432	-.137	.320
Female(reference)				
Fetal outcome				
Still birth	-.063	.793	-.536	.410
Live birth(reference)				
Residence				
Urban residence	-.260	.046*	-.515	-.005

Variables	unstandardized Coefficients	β P-value	95% Confidence Interval for β	
Rural(reference)				
Listen to radio or television				
No	.013	.908	-.213	.240
Yes(reference)				
Parity				
One child	-.021	.881	-.302	.259
Having four up to five children	.023	.844	-.209	.256
Having six and above children	-.069	.709	-.431	.293
Having two to three children (reference)				
Abortion experience				
Yes	.170	.321	-.167	.507
No(reference)				
Mode of delivery				
Normal vaginal delivery (reference)				
Assisted delivery	-.009	.963	-.406	.387
Cesarean section	.019	.925	-.384	.423

Note: * Statistically significant at p-value < 0.05, 95% CI. β - Positive values indicate higher quality score relative to the referent variable category level, while negative values indicate lower quality score compared with the referent category.

Chapter Six: Discussion

This is a community based cross sectional study conducted to assess perceived quality of institutional delivery services in three districts of Jimma zone. The participants were women who delivered in the public health institution in three districts of Jimma zone in the last one year.

The percentage mean score of perceived quality of institutional delivery services were 63% from interpersonal interaction dimension, 70% from health care delivery dimension and 58% from health facility/structure dimension. Respondents were rate low on items related to interpersonal interaction dimension. Similarly, another study done on patient satisfaction showed that the disrespectful behavior of health care provider negatively affects client satisfaction(33). Also study done in Nepal on perceived quality of delivery services reported that respondents were rate low concerning interpersonal aspects.

Even if the problem of interpersonal interaction is evident it rarely receives attention by health planners who seem to focus more on the technical aspects of quality (34). As a result the importance of interpersonal skills has been largely ignored, an important quality aspects which in certain settings had been found to be mutually reinforcing the technical quality component. Improving interpersonal interaction seems, therefore, a promising way to improve perceived quality of care(33).

From the study participants 51.1 % rate positive for the time health care providers spent on mothers during labor and delivery. In this study 61% of mothers rate positive on adequate information provision from health care provider during labor and delivery. This study nearly consistent with the study done on women satisfaction with childbirth care in Felege Hiwot Referral Hospital satisfaction on health advice and information given to the client was 67.5%

(40). But lower than the study done by Bahri on quality of labor support in Iran 92% of the participants had expressed that they were content with the information provided by the health care provider(39). The possible reason for this might be due to health policy of the countries concerning client centered service provision.

In this study thirty one percent of the study participants rate negative regarding respectful service provided for mothers during labor and delivery. In a study done by Larson in rural Tanzania, women who reported disrespect and abuse during delivery had significantly lower quality scores(37). Also in another study done in Tanzania women who reported any disrespectful and abusive treatment during childbirth were less likely to rate the quality of care for delivery as excellent or very good(38).

In this study respondents were rate positive to health care delivery dimension. In contrary, study conducted in Burkina Faso showed that inadequate prescription, availability and good quality of drugs. This difference may be due to in our context the provision of institutional delivery services as exempted services and the provision of drugs for mothers were free(8).

In this study 85% of the mothers' rate positive on the privacy provided to them during labor and delivery in the public health facilities. On the study done on factors that influence patient satisfaction women were very satisfied about how privacy was maintained in the wards(43).

Respondents were rated lower in their response to the health facility/structure dimension. It has been established that the physical environment of health facilities can impact on client perceived quality of care (46). Although clients may not able to evaluate whether a specific technical procedure is appropriate, however they can assess quality according to the availability of medical equipment and the behavior of health care provider serving the clients.

In this study participants rated the public health institutions as low in the health facility/structure dimension including the cleanliness of the public health facility, adequacy of water and adequate rooms for labor and delivery. Similar perceptions of lower quality about human and physical resources like bed, toilet and space of public facilities were observed on the study done in India and also in perceived quality of institutional delivery in Nepal (12,33,46).

In the current study half of the clients rated positive on the cleanliness of the public health facility. On the study done on women's satisfaction in Nepal more than two thirds of the clients were satisfied or very satisfied with cleanliness (35). This difference may be due to lack of adequate and functional water system in the public health facility they delivered

In this study perceived quality of institutional delivery services as measured by the three dimensions were predicted by educational status, residence, number of ANC follow up, sex of health care provider, pregnancy outcome and income of the household. This finding is consistent with other studies done on satisfaction and quality of institutional delivery services (7,37,38,46).

The participant's educational status was significant determinant of perceived quality of institutional delivery services. Mothers who were able to read and write rated interpersonal interaction lower than those participants who were unable to read and write. This is similar with the study done by Larson in rural Tanzania where women who had completed some secondary school rated the quality of delivery care lower than women with lower level of education (7,37).

The reason could be due to high expectation by those who are educated than the informal education.

In contrary to the above study from Uganda reported that, quality of care was significantly higher for post-secondary women relative to those with no education(7). The study also showed that mothers with fetal outcome dead rate lower score than mothers with a live out come. This might be due to women who experience a live pregnancy outcome may be happy and this may result in higher score in perceived quality of institutional delivery services. In this study mothers whose wealth index was in second wealth quintile were rated higher score than those whose wealth index was in the middle wealth quintile. This might be due to the difference in economic status that delivering mothers whose wealth index was in the middle wealth quintile had a potential to be served in where ever they want like private clinics or hospitals but those delivering mothers whose wealth index was in the second wealth quintile couldn't have a potential.

The perceived quality of institutional delivery services score were rated higher by mothers who were attended by female health care provider than those attended by male health care provider. This is similar with study done on client perceptions of the quality of primary care services in Afghanistan for female client's, being seen by a female provider was associated with higher perceived quality (48). The finding is consistent with the primary health care approach at community level which considers health care services provided by female health care worker is more acceptable(52).

In this study mothers from urban residence rated lower score for perceived quality of institutional delivery services relative to mothers from rural residents. This finding is in consistent with study done in Uganda on that average quality of care was significantly lower for urban residents relative to rural residents (7). This could be due to high quality expectation from urban residence.

Mothers who attended three and more time ANC rated higher score on perceived quality of institutional delivery services than mothers those attended less than three ANC visits. Similarly

to this study in rural Tanzania women who had received a greater number of ANC services rated the quality of delivery care higher than those who received fewer services (37).

The findings reported in this study must be interpreted with the following limitations in mind. First, recall bias, is a possibility since mothers were asked about what they experienced in the health facility within the previous one year. Moreover, mothers who were not registered on health extension registration book were not included in the study.

Chapter Seven: Conclusions and Recommendation

7.1. Conclusions

Overall, the perceived quality of institutional delivery services in public health facilities in three districts of Jimma zone were rated low based on the interpersonal interaction and health facility/structure dimensions. However, the participants rated the perceived quality of birth care as good based on health care delivery dimension.

Perceived quality of institutional delivery services differed significantly by socio-demographic and obstetric factors like residence, educational level, income, fetal outcome, number of ANC visit and sex of health care provider. This study also revealed several constraints in the provision of delivery care services like low provision of information during labor and delivery by health care provider, constraint of time the health care providers devoted to mothers, disrespectful way of providing care for mothers, lack of adequate water and cleanliness in the public health facilities.

7.2. Recommendations

For health care provider

- Health care provider should treat mothers on client centered way to enhance the uptake of ANC service utilization.
- Health care provider should retain the interpersonal interaction between provider and client by providing services for clients in respectful way.
- Health care provider need to give out enough time for mothers during labor and delivery services.

For Health facility

- Training health care provider on communication and interpersonal interaction and implementing the FMOH transformation agenda of caring, compassionate and respectful health care provision for clients have to be effected.
- Making delivery room conducive and availing adequate water

For health managers

- Health managers should consider providing structure/inputs for public health institutions and training of health care providers on communications and interpersonal interaction skills.
- Health managers should consider the preference of mothers for labor and delivery services by female health care providers

For researchers

- A longitudinal study design to assess perceived quality of institutional delivery services with incorporating the qualitative part.

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Annex

Annex I

Jimma University

College of health science

Departments of Health Economics, Policy and Management

English version

Questionnaire

Questionnaire for data collection on the perceived quality of delivery services among mothers who gave birth in public health facilities of Jimma zone south west Ethiopia

Informed consent form

Dear respondent

Hello, my name is ----- and I am working with Jimma university research team through department of health economics, management and policy. I am here to enroll and take interview from eligible study participants like you and fill in the questionnaire forms prepared by research team. I am glad to inform you that you are one of the chosen study participants to participate in this study the purpose of which is to assess perceived quality of institutional delivery services in Jimma zone public health institutions. The study results will be used to address issues related to quality of skilled delivery services in Ethiopia.

The information in this questionnaire will be kept strictly confidential, will not be divulged to any one and only the research team will have access to the information you gave but your name and address will not be recorded or identified even by the research team.

This questionnaire will be filled only if you agree to take part in the study. However your genuine and true responses you give value for success of the study and also will help for better understanding of the problem that would eventually help in designing appropriate intervention to solve the problems and I sincerely ask you to give your genuine and true responses to the questions provided .The questionnaire contains three parts and will take not more than 30 minutes.

So, would you like to participate in the study?

Yes/agree -----No/disagree -----

Thank you!

Date -----Signature of the data collector to certify the informed consent verbally -----

Exit interview for perceived quality of delivery services

Instruction for the interviewer

Write Tick or number, or statements or word of the interviewed mother in front of the question of space provided ____ of this space

Starting tim _____ End time _____

Date of data collection-----

Name of data collector----- signature-----

Name of supervisor----- signature-----

Questionnaire Code _____

Part I Socio demographic characteristics of the clients

S. N	Questions	Choice Answers	
101	Current age of mother	in years-----	
102	Where is your place of residence?	1.Rural 2.Urban	
103	What is your marital status?	1. single 2. Divorced 3. Widowed 4. Married 5. Separated	
104	What is your religion?	1.Orthodox 2.Muslim 3.Protestant 4.Catholic 5.Others, specify-----	
105	To which ethnic group do you belong?	1. Oromo 2. Amhara 3. Gurage 4. Dawero 5. Kefa 6. Others, specify-----	

106	What is your occupation?	1. House wife 2. Government Employee 3. Farmer 4. Merchant 5. Daily laborer 6. Others, specify-----	
107	What is educational level of the mother?	1.Unable to read and write 2.Read and write 3.Primary education(1-8) 4.Secondary education(9-12) 5.College and above	
108	How many hours /kilometers does it take to reach the health facility you delivered?	-----hours or -----kilometers	
109	What mode of transport you used to reach the health facility you delivered?	1.On foot 2.Ambulance 3.Other vehicles 4.On horse /mule back 5.Local stretcher 6.Other,specify-----	
110	Family size	In number -----	
111	Did you have information about skilled institutional health care services?	1.yes 2.No	
112	If yes, What were your sources of information about skilled institutional health care services?	1.Health extension workers 2.Health facility 3.Mass media 4.Women development army 5.Friends and family 6.Others specify_____	
113	Do you have exposure to mass media	1.Yes 2.No	
114	Do you have any of the following means of communication?	1 Radio 2.Television 3.both television and radio 4.Others, specify-----	

Part II Obstetric factors

201	What is the total number of pregnancies in your life time?	In numbers-----	Probe for abortions
202	What is the total number of live births? (parity)	In numbers -----	
203	Have you ever had history of abortion?	1.Yes 2.No	If noQ205

204	If yes how many times?	1. One 2.Two 3.Three 4.More than three	
205	Have you ever had history of still birth?	1.Yes 2.No	If not Q207
206	If yes how many times?	1. One 2.Two 3.Three 4.More than three	
207	Do you have any complication during delivery of the last child	1.Yes 2.No	If not skip to Q209
208	If yes for question number 207 what were the complications?	1.Severe vaginal bleeding 2.Severe Head ache 3.Marked & fast weight gain 4.Prolonged labor 5.Retained placenta 6.Other, specify-----	
209	Did you visit to health facility for ANC during your last pregnancy?	1.Yes 2.No	If not skip to Q 215
210	If you visit for ANC, number of visits	-----	
211	Where did you attend ANC follow up?	1. Hospital 2. Health Center 3. Private clinic 4. NGO Clinic 5. other specify_____	
212	During ANC follow up did you get any information about place of delivery & delivery Complications?	1.Yes 2.No	If not Q215
213	If yes, what types of information? (multiple answers are possible)	1.Severe vaginal bleeding 2.Severe Head ache 3.Marked & fast weight gain 4.Delivery at health facility 5.Prolonged labor 6.Retained placenta 7.Other, specify-----	
214	Was your last pregnancy planned?	1.Yes 2.No	
215	Who decide the place where you gave last birth?	1.Myself 2.My husband 3.Both of us 4.Other,specify-----	

216	What method of delivery?	1.Normal vaginal delivery 2.Cesarean section 3.Assisted vaginal delivery 4.Episiotomy	
217	Sex of the health care provider who attended the delivery	1.Male 2.Female	
218	Why did you choose to deliver in Health facility?	1.To get better services in health facilities 2.To get better outcomes from health facilities to me and my baby 3.Bad experience from past home delivery 4.I was informed to deliver in health facilities 5.The health facility closer to my home 6.Others, specify-----	
219	In which public health institution do you gave birth?	1.Health center 2.Hospital	
220	How many hours do you expend during labour?	1.< 6 hour 2.6-12 hour 3.12-24 hour 4.Above 24 hour	
221	Outcome of last pregnancy	1.Live birth 2.Still birth	

Part III: Questions on perceived quality of institutional birth services

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
301	In your opinion, the number of health staff in the public health institution is adequate .	5	4	3	2	1
302	In your opinion, the health staffs in the health facility are well suited to treat women's health problems.	5	4	3	2	1
303	In your opinion, the delivery room of the health facility is adequate for mothers.	5	4	3	2	1
304	In your opinion, the provision of clean drinking water for women in the health facility are adequate	5	4	3	2	1
305	In your opinion, the overall environment of the public health institution is very clean .	5	4	3	2	1
306	In your opinion, the equipment in the public health institution is well suited for detecting women's health problems.	5	4	3	2	1
307	In your opinion, the distance from your home to the health facility is near	5	4	3	2	1
308	In your opinion, the health staff in the public health institution examines pregnant and postpartum women well .	5	4	3	2	1
309	The public health institution provided very much privacy during vaginal examination and delivery.	5	4	3	2	1
310	In your opinion, the health staffs in the public health institution prescribe the drugs that are needed .	5	4	3	2	1
311	In your opinion, the drugs supplied by the public health institution are good .	5	4	3	2	1
312	In your opinion, mothers can obtain drugs from the public health institution easily .	5	4	3	2	1
313	In your opinion, during delivery care procedures you feel necessary act from health staffs.	5	4	3	2	1
314	In your opinion, the information of danger signs of delivery and postpartum provided by health staff is adequate .	5	4	3	2	1
315	In your opinion, the health staffs in the public health institution are very capable of finding out what is wrong with the clients.	5	4	3	2	1
316	In your opinion, the health staffs in the public health	5	4	3	2	1

	institution are very open with mothers.					
317	In your opinion, the health staffs in the public health institution are very compassionate towards the mothers.	5	4	3	2	1
318	In your opinion, the health staffs are respectful towards the mothers.	5	4	3	2	1
319	In your opinion, the time that the health staffs devote to their clients is adequate .	5	4	3	2	1
320	In your opinion, the health staffs in the public health institution are very honest .	5	4	3	2	1

IV. Household wealth index identification questionnaires'

Part I- Households wealth. Now I will ask you about some fixed assets that your households have.			
401	Does the household has any of the following properties.(circle)	Yes(1)	No(0)
	Functioning radio/tape	1	0
	Functioning television	1	0
	Stove(gas/kerosene/electric)	1	0
	motorcycle	1	0
	Cart/Gari	1	0
	Watch(hand /wall)	1	0
	Mobile phone	1	0
	Sofa	1	0
	Spring mattress	1	0
	Foam/sponge mattress	1	0
	generator	1	0
	Tractor (agricultural)	1	0
	Water pump	1	0
402	Does the Household have the following animals?	1.yes 0.no	How many?
	oxen		
	cows		
	Horse /mule		
	Goats /cheeps		
	Chicken		
	Donkey		

403	What is the main source of drinking water for members of your household?	<ol style="list-style-type: none"> 1.piped water into dwelling 2.Piped water to yard/plot 3.Public tap/standpipe water 4.Borehole water 5.Protected Dug well 6.Unprotected Dug well 7.Protected spring Water 8.Unprotected spring Water 9.River 10.Others, SPECIFY _____ 	
404	What kind of toilet facility do members of your household usually use?	<ol style="list-style-type: none"> 1. Pit latrine 2. Pit latrine with slab 3. Pit latrine without slab/Open pit 4. Ventilated improved pit latrine 5. No facility /bush/field 6. Other specify 	
405	Do you share this toilet facility with other households?	1. Yes 0/ No	If no, skip to Q407
406	If "yes for Q 405" how many households use this toilet facility?	No. Of households _____	
407	Main material of the floor. Record observation	<ol style="list-style-type: none"> 1. Earth/sand 2. Dung 3. Wood 4. Cement 5. Other ,specify _____ 	

408	Main material of the roof. Record observation	<ol style="list-style-type: none"> 1. No roof 2. Thatch/leaf 3. Corrugated iron /metal 4. Other, specify _____ 	
409	Main material of the exterior walls. Record observation.	<ol style="list-style-type: none"> 1. Natural walls 2. No walls 3. Bamboo/wood with mud 4. Uncovered adobe 5. covered adobe 6. Plywood /Reused wood 7. Other specify _____ 	
410	How many rooms do the household has?	No. of rooms _____	
411	How many bed rooms do the household has?	No. of rooms _____	
412	Does any member of this household own any agricultural land?	1. Yes 0. No	If no, skip to Q 414
413	If yes, How many (local units) of agricultural land do members of this household own?	Local units <ol style="list-style-type: none"> 1. Local units _____ 2. Don't know 	
414	Does any member of this household have a bank or microfinance saving account?	<ol style="list-style-type: none"> 1. Yes 2. No 	

Yuuniivarsiitii Jimmaatti

Kollejjii saayinsii fayyaa

Muummee Barnoota Bulchiinsa, Dinagdee, fi Poolisii faayyaa

Gaaffilee Afaan Oromoo odeeffannoo waa'ee ilaalcha qulqullina tajaajila da'uumsaadhaabbilee fayyaa haawwaan umrii da'uumsa keennan keessatti argamanii kan goodina Jimmaa kibba dhiha Itoopiyaa

Unka walii galtee

Kabajamoo oddeeffaannoo kennitoota

Heelloo akkam jirtu, ani maqaan koo _____ kaniin jedhamuu garee qorannoo yunivarsiitii Jimmaa keessatti muumnee barnoota Bulchiinsa Dinagdee, fi poolisii faayyaawalii hojjadha.

Ani kaniin asiitti argameef kadhimaamtoota akka keessanii gaffii fi deebii gaaffilee garee qorannoo Kanaan qopha'an isin gaffachuufiidha. Ani Kanaan isinitti himuu barbaadu isin namoota qorannoo kanaaf filamtan yoo taatan kaayyoon qorannoo kanaa ilaalcha namootni qulqullina tajaajila da'umsaa dhabilee fayyaa godina Jimmaa kennan qorachuufiidha. Bu'aan qorannoo kanaa rakkoolee hanqina dandeettii tajaajila da'umsaa irratti mudatan furuufiidha.

Oddeeffannoon isin nuuf laattan iccitiin isaa haalan kan eegamee fi kan nama biraaf haala kaminuu darbee hin laatamne yoo ta'uu maqaa fi wantootni waa'ee eenyummaa keessannii ibsan kam iyyuu kan hin galmoomnee fi darbees miseensuma garee Kanaan maqaan keessan kan hin baramne ta'uu isiniif ibsuu barbaada.

Gaaffilee odeeffannoof qopha'an kanniin kan guutamuu danda'an yoo isin hirmachuu fedhii qabattan qofa dha. Haa ta'u malee odeeffannoon dhugaa fi haqaa isin nuuf laattan rakkoolee kana sirriitti hubachuu fi furmata sirrii ta'e irra ga'uuf baay'ee akka nu barbaachisu isiniif ibsuu barbaada. Haaluma Kanaan odeeffannoo kessan murteessaa ta'e kana akka nuuf keennitan kabajaan isin gaffadha. Waluuma galatti gaaffilee kutaa sadi qabanii fi daqiiqaa 30 f turan of keessatti qabata.

Kanaaf qorannoo kana keessatti hirmachuuf fedhii qabduu?

Eeyyee/ittin walii gala_____ Lakki /itti walii hin galu_____

Galatoomaa

Guyyaa_____ mallattoo nama odeeffannoo funanuu waa'ee odeeffanichaa ibsuu isaaf

Gaaffilee yeroo tataajila fudhatanii bahan gaafatamu

Qajeelfama gaffii fi deebiif qopha'an

Lakkoofsa yookiin jecha fuuladura gaaffii jiru itti maruun yookiin mallattoo gochuun agarsisi.

Yeroo itti jalqabame_____ yeroo itti dhume _____

Guyyaa itti odeeffannoon sasaabame_____

Maqaa nama odeeffannoo funanuu_____ mallattoo _____

Maqaa to'ataa _____ mallattoo _____

Lakkoofsa addaa gaaffii _____

Kutaa 1 ffaa: Gaaffilee odeeffannoo waliigalaafi hawaasummaa ilaallatan.

Lakk	Gaaffilee	Filannoowwan	
101	Umriin kee meeqa?	----- waggaa	
102	Bakka jireenyaa	1.Baadiyyaa 2.Magaalaa	
103	Haala fuudhaa fi heerumaa	1. Hin heerumne 2.Walhiikneerra 3. Abbaan warraa narraa du'e 4. Heerumeera	

		5.Adda baaneerra/waliin hin jiraannu	
104	Amantaan kee maali?	1. Ortodoksii 2. Muusiliima 3 Pirootestaantii 4.Kaatoolikii 5.Kan biraa, adda baasi -----	
105	Sab-lammimkee maali	1. Oromoo 2. Amaaraa 3. Guraagee 4. Dawuroo 5.Kafaa 6. Kan biraa, adda baasi-----	
106	Hojiin kee maali?	1.Haadha warraa 2. Hojjetaa dhaabbata mootummaa 3. Qotee bulaa 4. Daldalaa 5. Hojjetaa guyyaa/dafqaan bulaa 6. Kan biraa, adda baasi -----	
107	Sadarkaan barumsaa hammami?	1.Barreessuufi dubbisuu kan hin dandeenye 2. Barreessuufi dubbisuu kan dandeessu 3.Barumsa sadarkaa jalqabaa(1-8) 4.Sadarkaa lammaffaafi(9-12) 5.Koollejji fi isaa oli	

108	Gara dhaabbata fayyaa ati itti deesse kana ga'uuf kiiloomeetira/ sa'atii meeqa sitti fudhata?	-----sa'atii ykn -----kiiloomeetira	
109	Gara dhaabbata fayyaa ati itti deesse kana ga'uuf geejjiba akkamiin dhufte?	1.miilaan 2.Ambulaansiidhaan 3.konkolaataa gosa biraa 4.Gaangee/Fardaan 5.Namaan baatamee 6.Kan biraa ,adda baasi-----	
110	Baayyinni maatii keessanii meeqa?	----- (lakkoofsaan)	
111	Odeffannoo Tajaajila da'umsaa dhaabbata fayyaatti ogeessa fayyaan deeggaramuun kennamuu dhagesse bektaa?	1. Eyyee 2. lakkii	
112	Eeyye yoo ta'e, maddi odeeffannoo Tajaajila da'umsaa dhaabbata fayyaatti ogeessa fayyaan deeggaramuun kennamuu maal ture?	1. Ogeettii Ekisteenshinee fayyaa 2. Dhaabbata fayyaa 3. Miidiyaalee hawaasaa 4. Gamta tokko shanee 5. Hiriyyootaafi maatiiwwan 6. Kan biraa, adda baasi_____	
113	Miidiyaalee adda addaa nii hordoftaa?	1. Eyyee 2. lakkii	
114	Wantoota odeeffannoo dabarsuuf / argachuuf gargaaran kanneen keessaa maalfaa qabda?	1. Raadiyoo 2. Televizhiinii 3. oomaa hin qabu 4.Kan biraa, adda baasi-----	

Kutaa 2ffaa. Gaaffii ogummaa deessissuun wal qabate.

201	Hanga ammaatti waliigalatti yeroo meeqa ulfoofttee jirta?	Lakkoofsaan_____	
		(yoo jira ta'e kan osoo hingahiin sirraa bahe fi kan du'ee dhalate dabalatee)	
202	Hanga ammaatti daa'ima meeqa deesseetta?	Lakkoofsaan_____	
203	Kana dura ulfi sirraa ba'ee turee?	1.Eyyee 2.Lakkii	
204	Gaaffii 203'f yoo deebiin kee Eyyee ta'e, ala meeqa?	1. Tokko 2.Lama 3.Sadii 4.Sadii oli	
205	Kana dura daa'ima lubbuu hin qabne deessee turtee?	1.Eyyee 2.Lakkii	
206	Gaaffii 205'f yoo deebiin kee Eyyee ta'e, ala meeqa?	1. Tokko 2.Lama 3.Sadii 4.Sadii oli	
207	Daa'ima kee kan dhuma irratti deesse kana yeroo deesse rakkoon da'umsaan wal qabate simudatee turee?	1. Eyyee 2. lakki	
208	Yoo deebiin kee gaaffii 207 eyyee ta'e, rakkoolee kamfaatu si mudate?	1. qaama hormaataan dhiiqni dhangala'uu. 2. bowwuu mataa cimaa. 3. ulfattinni qaamaa saffisaan dabaluu 4. Da'umsa mana yaalaatti taasisuu. 5. Miixuu/ciniinsuu sa'a dheeraa 6. Obbaattii/ofkaltiin ba'uu dhabuu. 7. kan biraa ibsi-----	
209	Da'umsa kee kan xumuraa kana irratti hordoffii kammiinuu taasifteettaa?	1. eeyyee 2. lakki	
210	Sababni ati gara mana yaalaa deemteef hordoffii da'umsa duraaf ta'e, si'a meeqa deemte?	Lakkoofsaan_____	

211	Hordoffii da'umsa duraa eessatti taasifte?	<ol style="list-style-type: none"> 1. hoospitaala 2. buufata fayyaa 3. kilinika dhunfaa 4. Kilinikaa mitmotumma 5. kan biraa, ibsi_____ 	
212	Yeroo Hordoffii da'umsa duraa taasifte odeeffannoo iddoo da'umsaa filachuu fi balaa hamaa yeroo da'umsaa argatteettaa?	<ol style="list-style-type: none"> 1. Eyyee 2. Lakki 	
213	Yoo eeyyee jette odeeffannoo akkamii? (deebii tokkoo ol kennuun ni danda'ama)	<ol style="list-style-type: none"> 1. qaama hormaataan dhiiqni dhangala'uu. 2. bowwuu mataa cimaa. 3. ulfattinni qaamaa saffisaan dabaluu 4. Da'umsa mana yaalaatti taasisuu. 5. Miixuu/ciniinsuu sa'a dheeraa 6. Obbaattii/ofkaltiin ba'uu dhabuu. 7. kan biraa ibsi. 	
214	Ulfii kee inni dhuma kanaa karoora kee turee?	<ol style="list-style-type: none"> 1. Eyyee 2. Lakki 	
215	Daa'ima kee dhuma eessatti da'uu akka qabdu kan murteessee eenyu ture?	<ol style="list-style-type: none"> 1. Anuma mataa koo 2. Abbaawarraa koo 3. Lamaan keenya 4. Ekisteenshinni fayyaa 5. kan biraa, adda baasi----- 	
216	Mala kamiin deessee	<ol style="list-style-type: none"> 1. Gadameessaan 2. Garaa baqaqsaan 3. Mees haadhaan gargaara manii na deessisanii 	

		4.Qaama saalaa kutanii/baqaqsanii hodhuun	
217	Ogeessi sideessise/te dhiira moo dhalaa dha?	1. Dhiira 2. Dhalaa	
218	Dhabbata fayyaa keessaatti dahuuf maliif filtee?	1.Tajaajila foyya'aa argachuuf 2. Bu'aa foyya'aa ofii kooti fi mucaa kottif argachhuf. 3.Muxxannoo badaa/gadhee/ manatti dhaluu yeroo darbee 4.Dhabbata fayyatti akkan dhaluu natti himameeti 5. Dhabbanni fayyaa mana kotti dhihoo jira. 6. Kan biro yoo jiratee ibsi-----	
219	Dhabbata fayyatti yoo deessee, dhabbataa fayyaa kamiitti deessee?	1.Bufata fayyaa 2.Hospitaala	
220	Sa'atii cinsuun sirra ture	1. sa'a 6 gadii 2. sa'a 6- 12:00 3. sa'a 12- 24:00 4. sa'a 24 ol	
221	Xumura/rawwii ulfaa isa dhihoo	1. Lubbuu qaba. 2.kan du'ee/lubbu kan hin qabne	

Kutaa 3 ffaa: Gaaffilee ilaalchaa qulqullina tajaajila da'umsaa dhaabbata fayyaa irratti dhiyaatan.

Lakk	Dhaabbata fayyaa					
	Gaaffilee	Sirriitti ittin walii	Ittin waliigala	yaada hin qabu	itti walii hin galu	sirriitti itti walii hin galu
301	Akka yaada keetti, baayyinni hojjetoota dhaabbata fayyaa keessa hojjetanii ga'aa dha.	5.	4.	3.	2.	1.
302	Akka yaada keetti, baayyinni hojjetoota dhaabbata fayyaa ati itti fayyadamte keessa hojjetanii rakkoolee haadholii yaaluuf mijatoo dha.	5.	4.	3.	2.	1.
303	Akka yaada keetti, bakki turanii dabaree eegan, kutaan sakatta'insaa ykn qorannoo yaalaa fi kutaaleen kan biroon dhaabbata fayyaa rakkoo haadholii furuuf ga'aadha.	5.	4.	3.	2.	1.
304	Akka yaada keetti, dhiyeessi bishaan dhugaatii qulqulluu, bakki harka itti dhiqatanii fi manneen boolii ykn Fincaanii dhaabbata fayyaa keessatti argaman haadholiidhaaf ga'aadha.	5.	4.	3.	2.	1.
305	Akka yaada keetti, walumaagalli naannoo dhaabbata fayyaa kanaa baayyee qulqulluudha.	5.	4.	3.	2.	1.
306	Akka yaada keetti, meeshaleen dhaabbata fayyaa kanaa keesatti argaman rakkoo haadholii sirriitti adda baasuuf kan sadarkaan isaanii eegamedha.	5.	4.	3.	2.	1.
307	Fageenyi mana kee fi dhaabbata fayyaa kana gidduu jiru baayyee fagoodha.	5.	4.	3.	2.	1.

308	Akka yaada keetti, hojjettoonni dhaabbata fayyaa kanaa haadholii yeroo ulfaafi da'umsa booda sirriitti qoratu/sakatta'u.	5.	4.	3.	2.	1.
309	Dhaabbanni fayyaa kanaa sakatta'insa qaama hormaataafi tajaajila da'umsaa bakka mijataa fi namni nama arguu hin dandeenyetti kenna.	5.	4.	3.	2.	1.
310	Akka yaada keetti, hojjettoonni dhaabbata fayyaa kanaa qorichoota barbaachisan ajaju/barreessu.	5.	4.	3.	2.	1.
311	Akka yaada keetti, qorichoonni dhaabbata fayyaa kanaan kennaman gaariidha/baroodha.	5.	4.	3.	2.	1.
312	Akka yaada keetti, haadhooliin qoricha haaluma salphaan dhaabbata fayyaa kanarraa argachuu danda'u.	5.	4.	3.	2.	1.
313	Sababa duraa duuba gochaalee hin barbaachisne yeroo da'umsaatiin miirrii nuffisiisaa fiqaaneffacuu natti dhagahameera.	5.	4.	3.	2.	1.
314	Akka yaada keetti, odeeffannoo/hubannoo mallattoo balaa cimaa yeroo da'umsaa fi da'umsa boodaa hojjettoonni fayyaa kennan ga'aadha.	5.	4.	3.	2.	1.
315	Akka yaada keetti, hojjettoonni fayyaa dhaabbata fayyaa kana keessa hojjetan,rakkoo fayyadamtootaa sirriitti adda baasuu nii danda'u.	5.	4.	3.	2.	1.
316	Akka yaada keetti, hojjettoonni dhaabbata fayyaa kana keessa hojjetan haadhooliififtoomina baayyee dansaa/gaarii qabu.	5.	4.	3.	2.	1.
317	Akka yaada keetti, hojjettoonni dhaabbata fayyaa kana keessa hojjetan haadhooliif	5.	4.	3.	2.	1.

	baayyee dhimmamoodha.					
318	Akka yaada keetti, hojjetoonni dhaabbata fayyaa kanaa haadhooliif sirriitti ni kabaju.	5.	4.	3.	2.	1.
319	Akka yaada keetti, yeroon hojjetoonni fayyaa haadhooliif qoodan ga'aadha.	5.	4.	3.	2.	1.
320	Akka yaada keetti, hojjetoonni fayyaa dhaabbata fayyaa kana keessa hojjetan sirriitti amanamoodha.	5.	4.	3.	2.	1.

Gaaffilee sassaabbii ragaa qabeenyaa Manneenii

Kutaa 1- Ragaa qabeenyaa. Armaan gaditti meshaalee mana keessan keessatti argamanu isinan gaafadha			
401 Mana kana keessa meshaalee armaan gadii kessaa kamtu jiraa ? yoo jiraatee (1) tti yoo hin jirre (0) tti mari		Eyyee(1)	Hinjiru (0)
	Raadiyo/CD/'tape recordarii' hojjetu	1	0
	Televisi'onii hojjetu	1	0
	Stoovii/gaazii/ ibsaa elektrikaa	1	0
	motorsaaykili	1	0
	Gaarii fardaa	1	0
	Sa'aatii girgiddaa	1	0
	Mobaayilii	1	0
	'Soofaa'	1	0
	Firaashii spoonjii	1	0
	Firaashii cidii	1	0

	Genereetarii	1	0
	Tiraaktara Qonnaa	1	0
402	Manni kun bineelda manaa armaan gadii qabaa?	1.eyyee 0.hinqabu	Meeqa?
	sangaa	1.eyyee 0.hinqabu	
	Sa'a	1.eyyee 0.hinqabu	
	Farad/gaangee	1.eyyee 0.hinqabu	
	Hoolaa/ reetii	1.eyyee 0.hinqabu	
	Reetii	1.eyyee 0.hinqabu	
	Harree	1.eyyee 0.hinqabu	

403	Maatiin keessan bishaan dhugaatii eessaa argataa?	1. bishaan boollaa itti ijaarame 2. bishaan boollaa itti hin ijaaramin 3. burqituu itti ijaarame 4.burqituu itti hin ijaaramin 5.Bishaan Biirii 6. bishaan bollaa paampii kan uummataa 6.Bishaan lagaa yaa'u 7.Ujummoo/sarara bishaanii dallaa keessaa 8. Ujummoo/sarara bishaanii dallaan alaa	
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		Kan biro,ibsi _____	
404	Maatiin keessan mana fincaanii akkamiitti fayyadama?	Boolla qotamaatti Boolla fincaanii dahannaa qabu Boolla fincaanii dahannaa hin qabne Mana fincaanii sadarkaa isaa eeggate Dirree,ykn bakkee irratti Kan biraa,ibsi _____	
405	Mana fincaanii kana maatiin kan biraa isinwaliin nifayyadama?	Eeyyee 0/ Lakki	Yoo lakkii ta'e gara gaaffii 407 tti darbi
406	Yoo deebiin 405 eeyyee ta'e Baayyinni Abbaa warraa isin waliin itti fayyadamanii meeqa?	Baayyina abbaa warraa _____	
407	Hundeen lafa mana kanaa maalii?.Ilaalii /daawwadhu mirkaneessi.	Biyoo/ lafa Dikee /compostii Muka Simintoo Kan biro _____	
408	Ijoon (Uwwisi)) mana kanaa maali? Ilaalii/daawwadhuu mirkaneessi.	Uwwisa hin qabu Citaa ykn baala Sibiila qorqorroo Kan biraa _____	

409	Duppon ykn Gidgidnaan mana kanaa maal irraa tolfame? Ilaalii/daawwadhuu mirkaneessi.	Natural walls Keenyan hin qabu Mukaafi biyoo ykn Dhoqqee Suphee ykn shakilaa duudaa hin ta'in Bilookeetii ykn Shakilaa duudaa Muka ykn xawulaa hin dulloomne (yeroo birraaf kan fayyadu) Kan biraa_____	
410	Manni keessan kun kutaa meeqa qaba?	Baayyina kutaa_____	
411	Maatii keessan lafaqotisaa hagam qaba ?	Safartuu naannoo(hektaara) ----- 2. Hin beeku	
412	Maatii keessan keessaa namni accountii baankii ykn baankii qusanoo fayyadamu jiraa?	Eeyye Hinjiru	

Annex II

Wealth Index

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.720
Bartlett's Test of Sphericity	Approx. Chi-Square	926.692
	df	66
	Sig.	.000

Communalities

Items	Initial	Extraction
Function television	1.000	.591
Does the house hold has stove	1.000	.694
Does the house hold has motorcycle	1.000	.723
Does the house hold has cart or gari	1.000	.768
Does the house hold has mobile phone	1.000	.552
Does the house hold has oxen	1.000	.722
Does the house hold has cows	1.000	.603
Does the house hold has goats or sheep	1.000	.786
Type of toilet	1.000	.642
Roof material	1.000	.679
Number of rooms	1.000	.670
Agricultural land owner	1.000	.616

Extraction Method: Principal Component Analysis.

Total variance explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.943	24.529	24.529	2.943	24.529	24.529	2.155	17.957	17.957
2	1.806	15.053	39.582	1.806	15.053	39.582	1.781	14.844	32.801
3	1.317	10.973	50.554	1.317	10.973	50.554	1.553	12.939	45.740
4	1.126	9.387	59.941	1.126	9.387	59.941	1.354	11.283	57.023
5	.853	7.105	67.046	.853	7.105	67.046	1.203	10.023	67.046
6	.769	6.410	73.456						
7	.686	5.713	79.169						
8	.612	5.098	84.266						
9	.568	4.730	88.996						
10	.501	4.177	93.173						
11	.466	3.884	97.057						
12	.353	2.943	100.000						

Extraction Method: Principal Component Analysis.

Items	Component				
	1	2	3	4	5
Does the house hold has oxen	.807				
Does the house hold has cows	.736				
Agricultural land owner	.721				
Roof material		.814			
Number of rooms		.714			
Does the house hold has mobile phone		.665			
Does the house hold has stove			.788		
Function television			.652		
Does the house hold has cart or gari				.839	
Does the house hold has motorcycle				.792	
Does the house hold has goats or sheep					.834
Type of toilet					.671

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.